REMARKS

This application contains claims 1-60. Claims 21 and 41 are hereby amended. No new matter has been added. Reconsideration is respectfully requested.

Claims 21 and 41 were objected to for an informality. Applicant has amended these claims to correct the informality and thanks the Examiner for his vigilance in pointing out the error.

Claims 1-5, 21-25 and 41-45 were rejected under 35 U.S.C. 102(e) over McCann et al. (U.S. Patent Application Publication US 2003/0061240). Applicant respectfully traverses this rejection.

McCann describes methods for writing data to a network-accessible file system while minimizing the risk of loss or corruption of cache data (title). File system write data operations are stored in a first temporary data store (cache 130a) on one cluster server (102a) and are mirrored to a second temporary data store (160b) on another cluster server (102b) (paragraphs 0011, 0046). The write data operation is then written to an external storage medium (104) either from the first server or from the second server if the write operation from the first server is unsuccessful (paragraphs 0012, 0035). In either case, the write data operation is written to the external storage medium from only one of the first and second temporary data stores, and the operation is then deleted from the other temporary data store (paragraphs 0012, 0013). This chain of events is shown by McCann in Fig. 4.

Claim 1 recites a method for storing data in a data storage system that includes primary and secondary storage subsystems. Each subsystem has its own volatile cache memory and non-volatile storage medium (identified as first and second volatile cache memories and first and second non-volatile storage media). In this respect, the

method of claim 1 is fundamentally different from that of McCann, in which a single storage medium (104) is shared by two different servers.

As recited in claim 1, data received at the primary storage subsystem are written to the first cache memory and copied to the secondary storage subsystem, where the data are written to the second cache memory. The secondary storage subsystem then returns an acknowledgment to the primary storage subsystem, which signals the host processor that the data have been stored. The data in the cache memories of both the primary and secondary are transferred to the respective (first and second) non-volatile storage media.

Since McCann describes only a single storage medium, he cannot possibly anticipate the step of "transferring the data... to the first and second non-volatile storage media, respectively," that is recited in claim 1. As stated in MPEP 2131:

> TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California* ,814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)... "The identical invention must be shown in as complete detail as is contained in the... claim." *Richardson v. Suzuki Motor Co* ., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Since McCann transfers data to only a single storage medium (104), he fails to meet the burden of showing the "identical invention" to claim 1.

In reference to the "transferring" step of claim 1, the Examiner cited McCann's paragraph 0046, which states that unwritten file system write data operations of a failed cluster server are maintained in a temporary storage medium (161) of the temporary data store (160) in the other, operational cluster server. The role of the this temporary storage medium, however, is fundamentally different from that of the non-volatile storage media recited in claim 1. Firstly, the claim recites that each of the first and second storage subsystems transfers data from its own cache to its own storage medium, whereas the data copying operation described by McCann in paragraph 0046 goes from one server to the other. Furthermore, McCann's step of writing data from one server to the temporary data store of the other (step 408 in Fig. 4, paragraph 0059) takes place before sending an acknowledgment to the client (step 412). Claim 1, by contrast, recites explicitly that the acknowledgment is sent prior to saving data in the non-volatile storage media.

Therefore, claim 1 is believed to be patentable over McCann. In view of the patentability of claims 1, dependent claims 2-5 are also believed to be patentable.

Claims 21-25 and 41-25 respectively recite apparatus and a computer software product that operate on principles similar to those of the methods of claim 1-5. These claims were rejected on the same grounds as claim 1-5 and are thus believed to be patentable for the reasons explained above.

Claims 6-20, 26-40 and 46-60 were rejected under 35 U.S.C. 103(a) over McCann in view of Yanai et al. (U.S. Patent 6,173,377). Applicant respectfully traverses this rejection. In view of the patentability of independent claims 1, 21 and 41, from which these claims depend, claims 6-20, 26-40 and 46-60 are similarly believed to be patentable.

Furthermore, notwithstanding the patentability of the independent claims, the dependent claims in this application are believed to recite independently-patentable subject matter. In the interest of brevity, Applicant will refrain from arguing the patentability of all the dependent claims, but several representative examples will be cited below.

For example, claim 6 depends from claim 4, which depends from claim 1, and adds that the second volatile cache memory is located in a site remote from the primary storage subsystem and is operated by a service provider other than an owner of the primary storage subsystem, and that the data are processed on a fee-per-service basis. The Examiner did not cite any specific passages in either McCann or Yanai in support of his rejection of claim 6, but rather deemed the claim to be obvious "because there are many commercial backup services that provide disk space for fee." The Examiner brought no proof of the existence of such services before the filing date of the present patent application, however. Furthermore, claim 6 is not drawn merely to rental of disk space, but rather recites a method of remote data mirroring for a fee by a service provider who acknowledges writing copied data to cache in the manner set forth in claim 1. In the absence of documentary proof that such services existed before the filing date of the present patent application, claim 6 is independently patentable.

As another example, claim 7 depends from claim 1 and adds that the secondary storage subsystem sends a message to the primary storage subsystem indicating addresses of the data that have been transferred to the second non-volatile storage media, and a record is created on the primary storage subsystem of the addresses of the data copied to the secondary storage subsystem and is updated in response to the message. The Examiner maintained that Yanai teaches such a record, and that a person of

ordinary skill in the art would have "implement[ed] the McCann's device with Yanai's record for effective recovery..." As pointed out above, however, McCann's system includes only a single storage medium, which is accessed by both of his servers. Yanai's record of data stored on a secondary storage system would therefore have had no meaning in McCann's system, and the person of ordinary skill could not have combined the teachings of McCann and Yanai to arrive at the method of claim 7. Therefore, claim 7 is also independently patentable over the cited art.

Claim 14 depends from claim 1 and adds that the primary storage subsystem sends a message to the secondary storage subsystem indicating addresses of the data that have been transferred to the first non-volatile storage media, and a record is created on the secondary storage subsystem of the addresses of the data copied to the secondary storage subsystem and is updated in response to the message. The Examiner rejected this claim on the same grounds as claim 7, and evidently ignored a key difference between these two claims: Whereas claim 7 recites a record of data that have been transferred to a non-volatile storage medium on the secondary storage subsystem, claim 14 recites keeping a record on the secondary storage subsystem of data that have been transferred to a non-volatile storage medium on the primary storage subsystem. In other words, the subsystem to which the data are copied also keeps a record of storage of the data on the subsystem that sent the data for copying. Neither Yanai nor McCann teaches or suggests such a record. Therefore, claim 14, too, is independently patentable over the cited art.

Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, Applicant respectfully

submits that all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

Please charge any fees associated with this paper to deposit account No. 09-0468.

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